

## SEQUENCE LISTING

<110> Flasinski, Stanislaw

<120> Methods for Using Artificial Polynucleotides and Compositions thereof to Reduce Transgene Silencing

<130> 11899.0235.00PC00

<140> US 60/396,665

<141> 2002-07-18

<150> US 06/396,665

<151> 2002-07-18

<160> 35

<170> PatentIn version 3.2

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<211> 515

<212> PRT

<213> Oryza sativa

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Ala Arg Gly Arg Arg Glu Ala Val Val Val Ala Ser Ala Ser Ser Ser  
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Ser Val Ala Ala Pro Ala Ala Lys Ala Glu Glu Ile Val Leu Gln Pro  
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Ile Arg Glu Ile Ser Gly Ala Val Gln Leu Pro Gly Ser Lys Ser Leu  
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Ser Asn Arg Ile Leu Leu Leu Ser Ala Leu Ser Glu Gly Thr Thr Val  
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Val Asp Asn Leu Leu Asn Ser Glu Asp Val His Tyr Met Leu Glu Ala  
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Val Gly Leu Lys Gln Leu Gly Ala Asp Val Asp Cys Phe Leu Gly Thr  
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Glu Cys Pro Pro Val Arg Val Lys Gly Ile Gly Gly Leu Pro Gly Gly  
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Glu Gly Asp Ala Ser Ser Ala Ser Tyr Phe Leu Ala Gly Ala Ala Ile  
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&lt;211&gt; 1548

&lt;212&gt; DNA

&lt;213&gt; Oryza sativa

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<213> *Oryza sativa*

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<213> Glycine max

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Ser Leu Arg Pro Arg Leu Trp Gly Ala Ser Lys Ser Arg Ile Pro Met
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His Lys Asn Gly Ser Phe Met Gly Asn Phe Asn Val Gly Lys Gly Asn
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Ser Gly Val Phe Lys Val Ser Ala Ser Val Ala Ala Ala Glu Lys Pro
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Ser Glu Asp Ile His Tyr Met Leu Gly Ala Leu Arg Thr Leu Gly Leu  
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Gly Gly Leu Phe Pro Thr Ser Lys Glu Ser Lys Asp Glu Ile Asn Leu  
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Phe Leu Gly Asn Ala Gly Ile Ala Met Lys Ser Leu Thr Ala Ala Val  
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Val Ala Ala Gly Gly Asn Ala Ser Tyr Val Leu Asp Gly Val Pro Arg  
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Met Arg Glu Arg Pro Ile Gly Asp Leu Val Ala Gly Leu Lys Gln Leu  
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Gly Ala Asp Val Asp Cys Phe Leu Gly Thr Asn Cys Pro Pro Val Arg  
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Val Asn Gly Lys Gly Gly Leu Pro Gly Gly Lys Val Lys Leu Ser Gly  
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Ser Val Ser Ser Gln Tyr Leu Thr Ala Leu Leu Met Ala Ala Pro Leu  
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Ala Leu Gly Asp Val Glu Ile Glu Ile Val Asp Lys Leu Ile Ser Val  
 275 280 285

Pro Tyr Val Glu Met Thr Leu Lys Leu Met Glu Arg Phe Gly Val Ser  
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Val Glu His Ser Gly Asn Trp Asp Arg Phe Leu Val His Gly Gly Gln  
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Lys Tyr Lys Ser Pro Gly Asn Ala Phe Val Glu Gly Asp Ala Ser Ser  
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Ala Ser Tyr Leu Leu Ala Gly Ala Ala Ile Thr Gly Gly Thr Ile Thr

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 Arg Gly Ile Asp Val Asn Met Asn Lys Met Pro Asp Val Ala Met Thr  
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 Leu Ala Val Val Ala Leu Phe Ala Asn Gly Pro Thr Ala Ile Arg Asp  
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 Val Ala Ser Trp Arg Val Lys Glu Thr Glu Arg Met Ile Ala Ile Cys  
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 Thr Glu Leu Arg Lys Leu Gly Ala Thr Val Glu Glu Gly Pro Asp Tyr  
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 Cys Val Ile Thr Pro Pro Glu Lys Leu Asn Val Thr Ala Ile Asp Thr  
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 Tyr Asp Asp His Arg Met Ala Met Ala Phe Ser Leu Ala Ala Cys Gly  
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 Asp Val Pro Val Thr Ile Lys Asp Pro Gly Cys Thr Arg Lys Thr Phe  
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&lt;211&gt; 1578

&lt;212&gt; DNA

&lt;213&gt; Glycine max

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<400> 8

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 50 55 60

Ala Glu Glu Ile Val Leu Gln Pro Ile Lys Glu Ile Ser Gly Thr Val  
 65 70 75 80

Lys Leu Pro Gly Ser Lys Ser Leu Ser Asn Arg Ile Leu Leu Leu Ala  
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Ala Leu Ser Glu Gly Thr Thr Val Val Asp Asn Leu Leu Asn Ser Glu  
 100 105 110

Asp Val His Tyr Met Leu Gly Ala Leu Arg Thr Leu Gly Leu Ser Val  
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Glu Ala Asp Lys Ala Ala Lys Arg Ala Val Val Val Gly Cys Gly Gly  
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Lys Phe Pro Val Glu Asp Ala Lys Glu Glu Val Gln Leu Phe Leu Gly  
 145 150 155 160

Asn Ala Gly Ile Ala Met Arg Ser Leu Thr Ala Ala Val Thr Ala Ala  
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Gly Gly Asn Ala Thr Tyr Val Leu Asp Gly Val Pro Arg Met Arg Glu  
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Arg Pro Ile Gly Asp Leu Val Val Gly Leu Lys Gln Leu Gly Ala Asp  
 195 200 205

Val Asp Cys Phe Leu Gly Thr Asp Cys Pro Pro Val Arg Val Asn Gly  
 210 215 220

Ile Gly Gly Leu Pro Gly Gly Lys Val Lys Leu Ser Gly Ser Ile Ser  
 225 230 235 240

Ser Gln Tyr Leu Ser Ala Leu Leu Met Ala Ala Pro Leu Ala Leu Gly  
 245 250 255

Asp Val Glu Ile Glu Ile Ile Asp Lys Leu Ile Ser Ile Pro Tyr Val  
 260 265 270

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 405 410 415

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&lt;213&gt; Zea mays

&lt;400&gt; 9

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gtcaccatcc gggaccctgg gtgcaccgcg aagaccttcc ccgactactt cgatgtgctg      1500
agcactttcg tcaagaatta a                                             1521

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&lt;210&gt; 10

&lt;211&gt; 1521

&lt;212&gt; DNA

&lt;213&gt; Zea mays

&lt;400&gt; 10

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atggcggtta tggccacgaa ggcagcggcc ggtacagtaa gcctcgattt ggcggccccc . 60
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tcaaccttcg tgaagaactg a 1521

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&lt;210&gt; 11

&lt;211&gt; 76

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 11

Met Ala Gln Val Ser Arg Ile Cys Asn Gly Val Gln Asn Pro Ser Leu  
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Ile Ser Asn Leu Ser Lys Ser Ser Gln Arg Lys Ser Pro Leu Ser Val  
 20 25 30

Ser Leu Lys Thr Gln Gln His Pro Arg Ala Tyr Pro Ile Ser Ser Ser  
 35 40 45

Trp Gly Leu Lys Lys Ser Gly Met Thr Leu Ile Gly Ser Glu Leu Arg  
 50 55 60

Pro Leu Lys Val Met Ser Ser Val Ser Thr Ala Cys  
 65 70 75

&lt;210&gt; 12

&lt;211&gt; 228

&lt;212&gt; DNA

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 12

atggcgcaag ttagcagaat ctgcaatggg gtgcagaacc catctcttat ctccaatctc 60  
 tcgaaatcca gtcaacgcaa atctccctta tcggtttctc tgaagacgca gcagcatcca 120  
 cgagcttata cgatttcgtc gtcgtgggga ttgaagaaga gtgggatgac gttaattggc 180  
 tctgagcttc gtcctcttaa ggtcatgtct tctgtttcca cggcgtgc 228

&lt;210&gt; 13

&lt;211&gt; 228

&lt;212&gt; DNA

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 13

atggcccagg taagtaggat ctgtaacgga gtccaaaacc cttcactaat atcgaacctg 60  
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 agggcttata ccatctcaag ctccctgggg cttaaagaaaa gtggaatgac actgatcggt 180  
 agcgaactac gaccgctgaa agtcatgtcc tcagtcagca ctgcgtgc 228

&lt;210&gt; 14

&lt;211&gt; 228

&lt;212&gt; DNA

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 14

atggcgcaag taagtagaat ctgcaacggc gtgcagaacc cgtcgctgat ctccaacctc 60  
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agggcctacc ctatcagctc atcctggggc ctcaagaaga gtggcatgac gctgatcggc 180  
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<210> 15  
 <211> 455  
 <212> PRT  
 <213> Agrobacterium tumefaciens

<400> 15

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 1 5 10 15

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 20 25 30

Arg Ser Phe Met Phe Gly Gly Leu Ala Ser Gly Glu Thr Arg Ile Thr  
 35 40 45

Gly Leu Leu Glu Gly Glu Asp Val Ile Asn Thr Gly Lys Ala Met Gln  
 50 55 60

Ala Met Gly Ala Arg Ile Arg Lys Glu Gly Asp Thr Trp Ile Ile Asp  
 65 70 75 80

Gly Val Gly Asn Gly Gly Leu Leu Ala Pro Glu Ala Pro Leu Asp Phe  
 85 90 95

Gly Asn Ala Ala Thr Gly Cys Arg Leu Thr Met Gly Leu Val Gly Val  
 100 105 110

Tyr Asp Phe Asp Ser Thr Phe Ile Gly Asp Ala Ser Leu Thr Lys Arg  
 115 120 125

Pro Met Gly Arg Val Leu Asn Pro Leu Arg Glu Met Gly Val Gln Val  
 130 135 140

Lys Ser Glu Asp Gly Asp Arg Leu Pro Val Thr Leu Arg Gly Pro Lys  
 145 150 155 160

Thr Pro Thr Pro Ile Thr Tyr Arg Val Pro Met Ala Ser Ala Gln Val  
 165 170 175

Lys Ser Ala Val Leu Leu Ala Gly Leu Asn Thr Pro Gly Ile Thr Thr  
 180 185 190



Val Ile Glu Pro Ile Met Thr Arg Asp His Thr Glu Lys Met Leu Gln  
 195 200 205

Gly Phe Gly Ala Asn Leu Thr Val Glu Thr Asp Ala Asp Gly Val Arg  
 210 215 220

Thr Ile Arg Leu Glu Gly Arg Gly Lys Leu Thr Gly Gln Val Ile Asp  
 225 230 235 240

Val Pro Gly Asp Pro Ser Ser Thr Ala Phe Pro Leu Val Ala Ala Leu  
 245 250 255

Leu Val Pro Gly Ser Asp Val Thr Ile Leu Asn Val Leu Met Asn Pro  
 260 265 270

Thr Arg Thr Gly Leu Ile Leu Thr Leu Gln Glu Met Gly Ala Asp Ile  
 275 280 285

Glu Val Ile Asn Pro Arg Leu Ala Gly Gly Glu Asp Val Ala Asp Leu  
 290 295 300

Arg Val Arg Ser Ser Thr Leu Lys Gly Val Thr Val Pro Glu Asp Arg  
 305 310 315 320

Ala Pro Ser Met Ile Asp Glu Tyr Pro Ile Leu Ala Val Ala Ala Ala  
 325 330 335

Phe Ala Glu Gly Ala Thr Val Met Asn Gly Leu Glu Glu Leu Arg Val  
 340 345 350

Lys Glu Ser Asp Arg Leu Ser Ala Val Ala Asn Gly Leu Lys Leu Asn  
 355 360 365

Gly Val Asp Cys Asp Glu Gly Glu Thr Ser Leu Val Val Arg Gly Arg  
 370 375 380

Pro Asp Gly Lys Gly Leu Gly Asn Ala Ser Gly Ala Ala Val Ala Thr  
 385 390 395 400

His Leu Asp His Arg Ile Ala Met Ser Phe Leu Val Met Gly Leu Val  
 405 410 415

Ser Glu Asn Pro Val Thr Val Asp Asp Ala Thr Met Ile Ala Thr Ser  
 420 425 430

Phe Pro Glu Phe Met Asp Leu Met Ala Gly Leu Gly Ala Lys Ile Glu

435

440

445

Leu Ser Asp Thr Lys Ala Ala  
450 455

<210> 16  
<211> 1368  
<212> DNA  
<213> *Agrobacterium tumefaciens*

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gcgagcgggtg aaacgcgcat caccggcctt ctggaaggcg aggacgtcat caatacgggc 180  
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ggcgtcggca atggcggcct cctggcgcct gaggcgccgc tcgatttcgg caatgccgcc 300  
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gatcatacgg aaaagatgct gcagggtctt ggcgcgaacc ttaccgtcga gacggatgcg 660  
gacggcgtgc gcaccatccg cctggaaggc cgcgggaagc tcaccggcca agtcatcgac 720  
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catctcgatc accgcatcgc catgagcttc ctgctcatgg gcctcgtgtc ggaaaaccct 1260  
gtcacgggtg acgatgccac gatgatcgcc acgagcttcc cggagttcat ggacctgatg 1320  
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<210> 17

<211> 1368  
 <212> DNA  
 <213> *Agrobacterium tumefaciens*

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 gtgaccgttg acgatgctac catgatcgcc acctcctttc ctgagttcat ggacctcatg 1320  
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<210> 18  
 <211> 1368  
 <212> DNA  
 <213> *Agrobacterium tumefaciens*

<400> 18  
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&lt;210&gt; 19

&lt;211&gt; 183

&lt;212&gt; PRT

&lt;213&gt; Streptomyces hygroscopicus

&lt;400&gt; 19

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Met Ser Pro Glu Arg Arg Pro Ala Asp Ile Arg Arg Ala Thr Glu Ala
1      5      10      15

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Asp Met Pro Ala Val Cys Thr Ile Val Asn His Tyr Ile Glu Thr Ser
20      25      30

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Thr Val Asn Phe Arg Thr Glu Pro Gln Glu Pro Gln Asp Trp Thr Asp
35      40      45

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Asp Leu Val Arg Leu Arg Glu Arg Tyr Pro Trp Leu Val Ala Glu Val  
50 55 60

Asp Gly Glu Val Ala Gly Ile Ala Tyr Ala Gly Pro Trp Lys Ala Arg  
65 70 75 80

Asn Ala Tyr Asp Trp Thr Ala Glu Ser Thr Val Tyr Val Ser Pro Arg  
85 90 95

His Gln Arg Thr Gly Leu Gly Ser Thr Leu Tyr Thr His Leu Leu Lys  
100 105 110

Ser Leu Glu Ala Gln Gly Phe Lys Ser Val Val Ala Val Ile Gly Leu  
115 120 125

Pro Asn Asp Pro Ser Val Arg Met His Glu Ala Leu Gly Tyr Ala Pro  
130 135 140

Arg Gly Met Leu Arg Ala Ala Gly Phe Lys His Gly Asn Trp His Asp  
145 150 155 160

Val Gly Phe Trp Gln Leu Asp Phe Ser Leu Pro Val Pro Pro Arg Pro  
165 170 175

Val Leu Pro Val Thr Glu Ile  
180

<210> 20

<211> 552

<212> DNA

<213> *Streptomyces hygrosopicus*

<400> 20

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caggaaccgc aggactggac ggacgacctc gtccgtctgc gggagcgcta tccctggctc	180
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agcgtggctg ctgtcatcgg gctgcccac gaccgagcg tgcgcatgca cgaggcgctc	420
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gtgggtttct ggcagctgga cttcagcctg ccggtaccgc cccgtccggt cctgcccgtc	540

accgagatct ga

552

&lt;210&gt; 21

&lt;211&gt; 552

&lt;212&gt; DNA

<213> *Streptomyces hygroscopicus*

&lt;400&gt; 21

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 caggagccac aggattggac ggacgatctg gtacgtttaa gagaacgtta tccgtggcta 180  
 gttgctgagg ttgacggaga agtcgctggg atagcttacg ctggaccgtg gaaagctcgt 240  
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 tctgttggtg cagttattgg attgccaaac gatccgagtg ttcgaatgca cgaagcgctt 420  
 ggatacgctc cacgaggtat gctccgtgct gccggattca aacatggaaa ttggcacgac 480  
 gtaggttttt ggcaactgga cttttcactt cccgttcccc ctagacctgt acttccagtt 540  
 actgaaatct ag 552

&lt;210&gt; 22

&lt;211&gt; 552

&lt;212&gt; DNA

<213> *Streptomyces hygroscopicus*

&lt;400&gt; 22

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 gtttgcacca ttgtgaatca ctacatcgag acatctacgg taaacttccg cactgagcct 120  
 caagaaccgc aggattggac cgacgatctc gtgcgtctca gagagcgta tccgtggctg 180  
 gttgcagagg tggacggtga agtggctggg atcgccctacg ctggaccgtg gaaggctaga 240  
 aacgcatacg attggactgc ggagtccaca gtctacgtct caccagaca tcaaagaacc 300  
 gggctcggct cgaccctcta tacgcatctc ctcaagtct tagaggcgca gggcttcaaa 360  
 tctgtagtgg cggatgatcg cttgccaaac gatcccagtg tgagaatgca cgaggcactc 420  
 ggttacgctc ctagaggaat gctcagggcg gctggattca agcacggtaa ttggcacgac 480  
 gttggcttct ggcaactgga cttctctttg ccagttccac ctcgctcctgt gctacccgtc 540  
 accgaaatct ag 552

&lt;210&gt; 23

&lt;211&gt; 1368

&lt;212&gt; DNA

<213> *Agrobacterium tumefaciens*

<400> 23

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accgtccgta ttccagggtga caagtctatc tcccacaggt ccttcattgtt tggagggtctc    120
gctagcgggtg aaactcgtat caccgggtctt ttggaagggtg aagatgttat caacactgggt    180
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gggtgttggtg acgggtggact ccttgctcct gaggtctctc togatttcgg taacgctgca     300
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